

Automatic point cloud classification with Flai web app

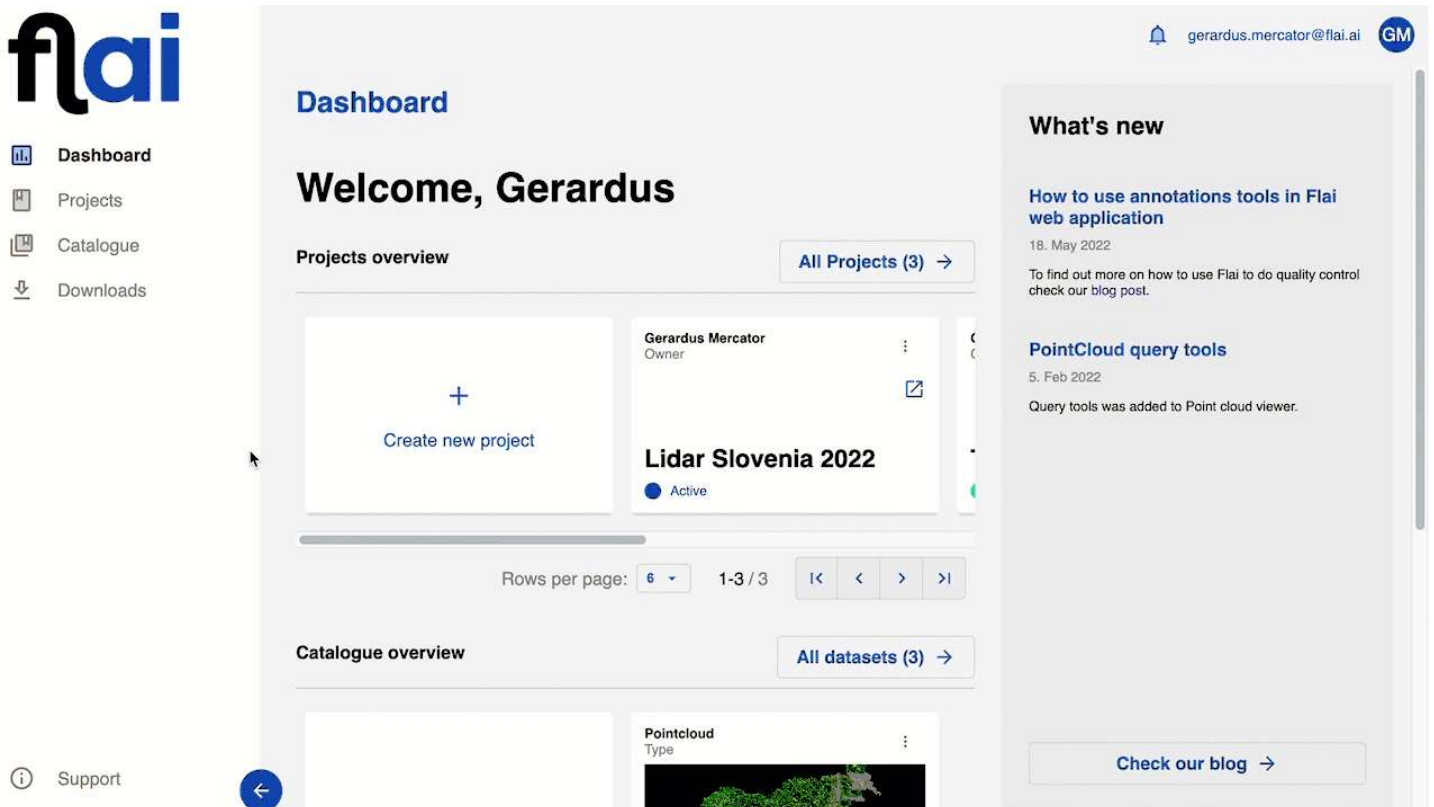
Annotating point clouds can be a time-consuming process. To help with the task, several macros and filters are available on the market, but there are limitations to using existing methodologies.

Current solutions offer a limited number of categories, are inaccurate and require a lot of manual parameter tweaking. Flai overcomes those issues by using artificial intelligence, specifically deep neural networks, to automatically classify point clouds into up to 18 different categories with high precision and without any manual interactions.

In this post, let's take a look at how you can upload, process and download a point cloud using Flai web app.

Uploading a point cloud

First, you have to upload the point cloud you want to process. Dataset upload can be initiated from the *Dashboard*, *Catalogue* page or inside a *Projects* view.



Upload the point cloud from the Projects view.

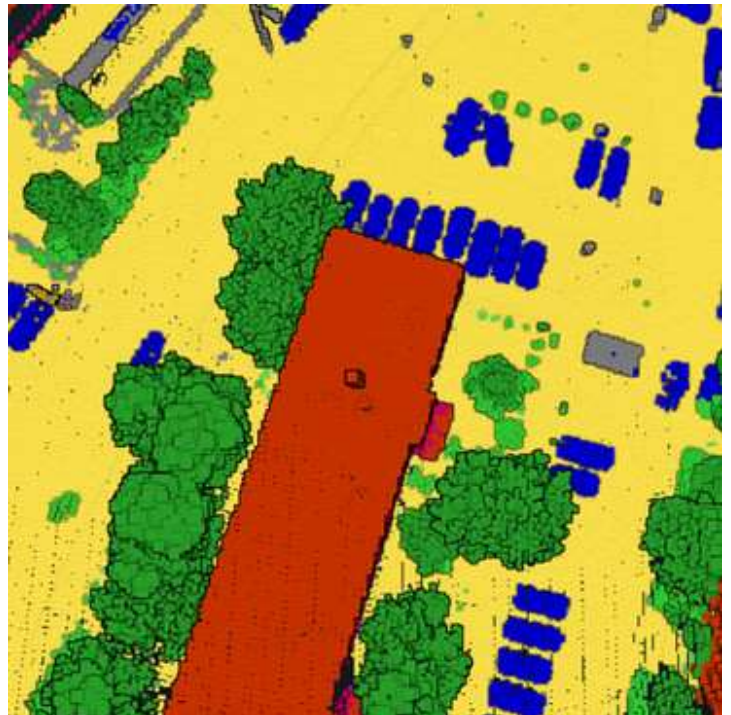
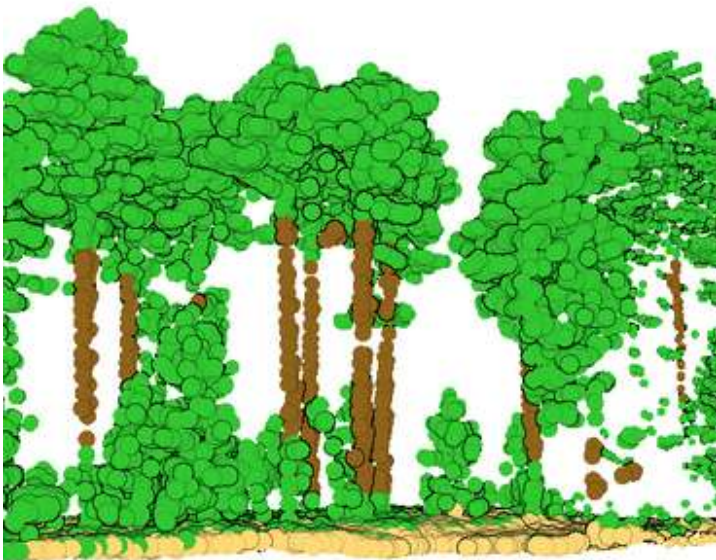
Besides the direct upload from the computer, you can add the data to the application stored on the Amazon S3 bucket.

Available pretrained AI model

On Flai web app various pre-trained classification modules are available for processing:

1. Geospatial basic (7 categories)
2. Geospatial advanced (18 categories)
3. Forestry basic (3 categories)
4. Forestry advanced (4 categories)

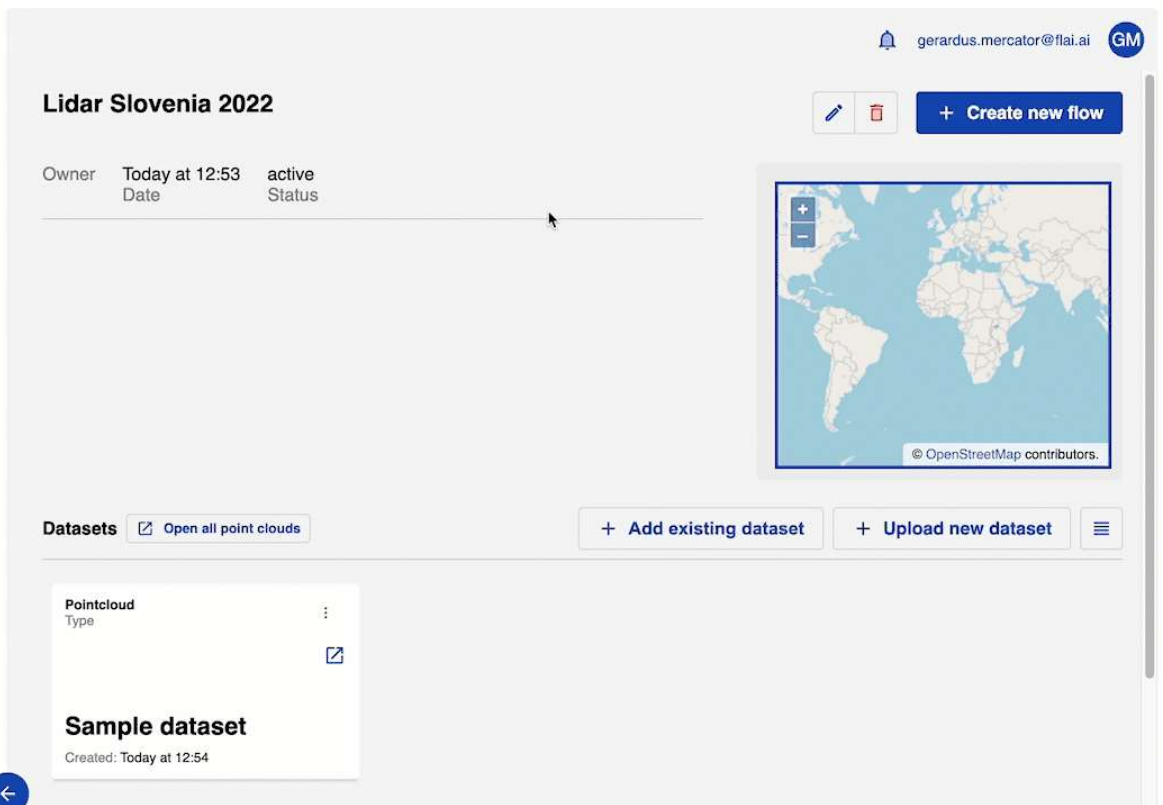
Pre-trained Artificial Intelligence (AI) models that are used to automatically classify point clouds are called FlaiNet processors.



Performing the point cloud classification

Processing on Flai web application is done by defining processing flows.

Processing flows are essentially data pipelines, comprised of data readers, processing nodes and data writers.

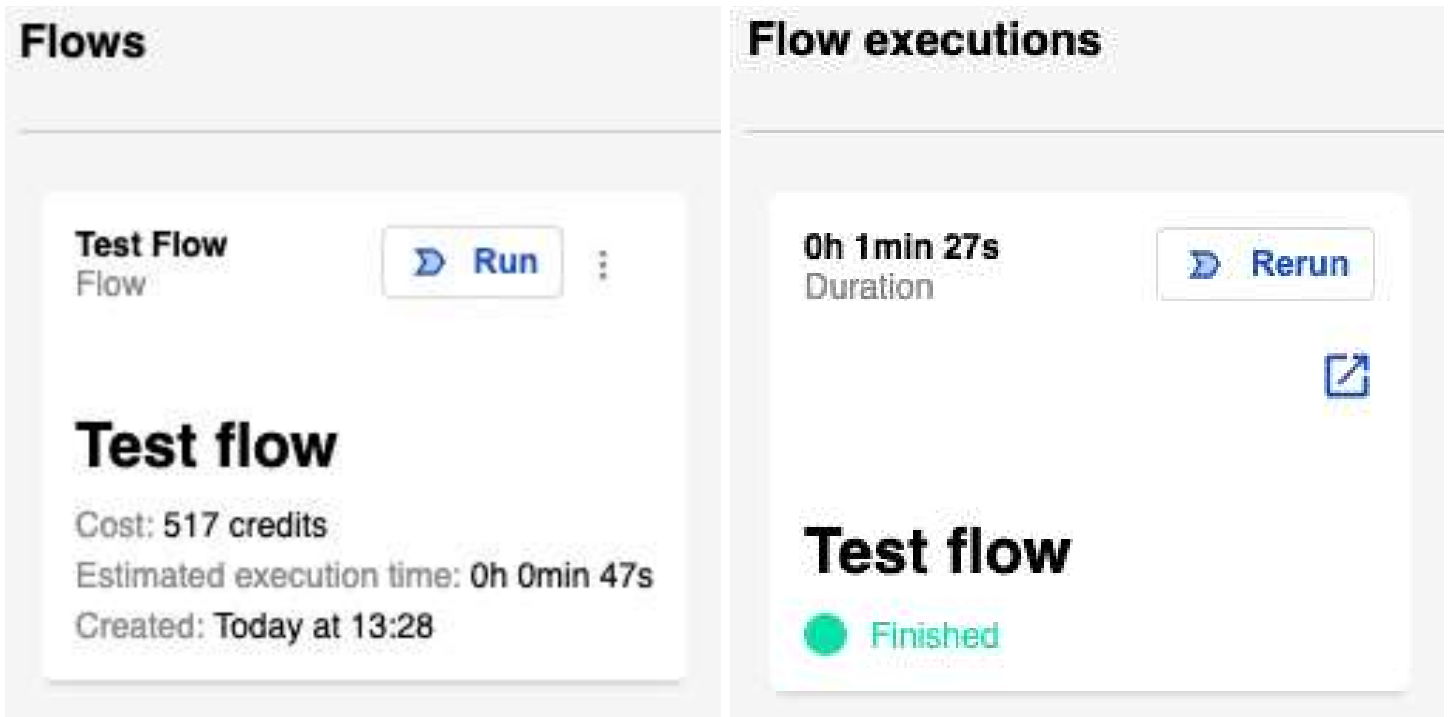


Define the processing flow by adding and connecting processors.

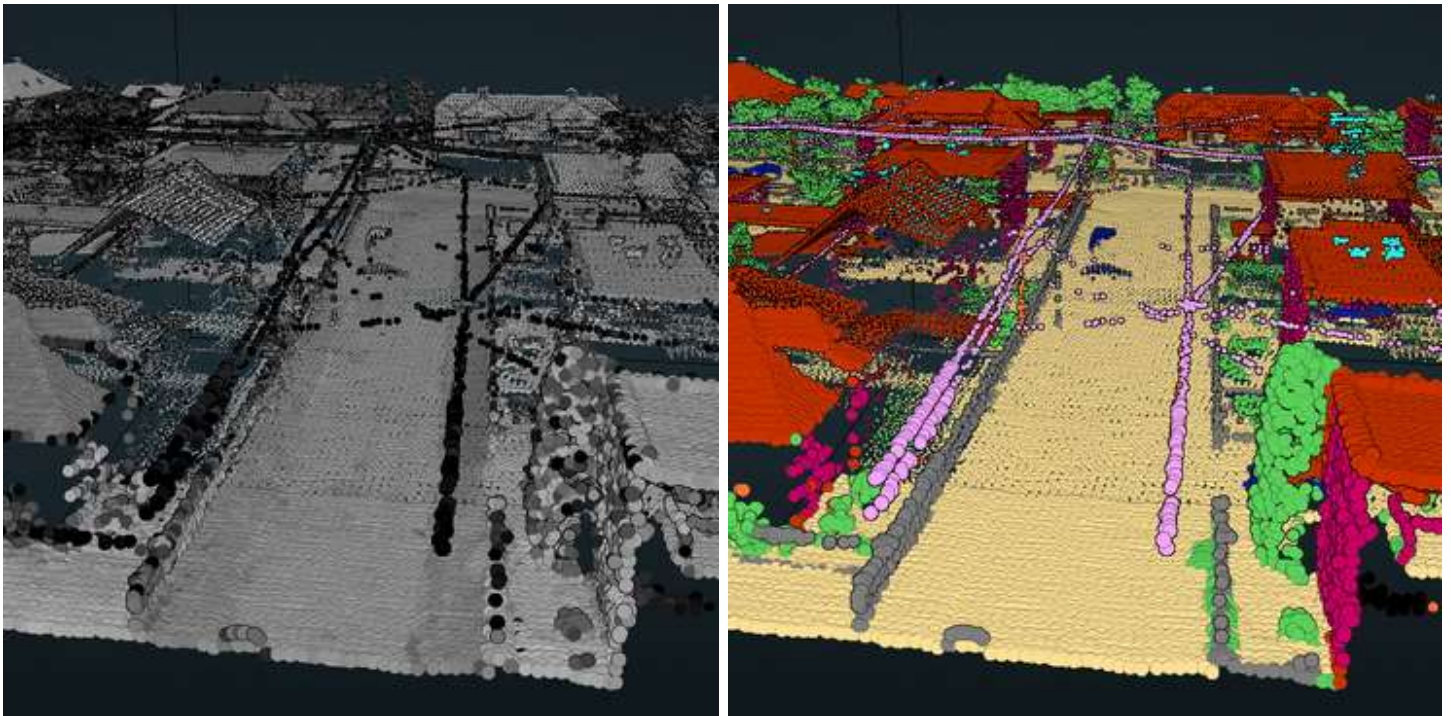
To run the processing after data are uploaded:

- Navigate to *Projects* view and select a project in which you want to create a processing flow.
- Click on **Create new flow**.
- Create the classification flow by clicking **+** to add them to the screen. For basic processing, a minimum of 3 nodes need to be defined:
 - In *readers*, select the **Point cloud reader** and click the gear icon to select the dataset in the drop down menu.
 - in *processors*, select **FlaiNet processor** and click the gear icon to select the correct model.
 - For example, if your point cloud does not have intensity, you have to choose a model that does not use intensity to obtain optimal results.
 - in *writers*, select the **Point cloud writer** and click the gear icon to specify the name of the output point cloud.
- When you have configured all 3 nodes, connect them with arrows by clicking on the output connector of the first node and matching them to the input connector of the following node.
- Click **Save**.
- Click **Run** when you are ready to start processing.
- A notification pops up, telling you approximately how long the processing will take and how many processing units you need to process the flow. By clicking **Confirm** the processing will start.

You can check the status of your flow by navigating to the project in which it was created. On the bottom, there is a section "Flow executions" where you can check the status of your flows.



After the flow finishes processing, you will receive an email notification. You can check the results either by clicking the link in the email or by finding the newly created dataset in the catalogue.



Downloading the results

It is possible to download the classified point cloud in the .laz file format by clicking the download icon (1) in the *Catalogue* view.

Once the download is prepared you will receive an email notification with the download link to the file.

To see the list of available files, click **Downloads(2)** and select the one you want to download.























- Dashboard
- Projects
- Catalogue
- Downloads



Catalogue

Search (246 + K) [Q] [Upload dataset]

Clear filters(0)

Name	Size	Owner	Created	Type	Status	Access	
[Airborne LIDAR] Detection of water plots and streams				pointcloud	ready		   
[Airborne LIDAR] - Demo Urban mini				pointcloud	ready		   
[Airborne LIDAR] - Demo Powerline mini				pointcloud	ready		   
[Airborne LIDAR] - Demo Village mini				pointcloud	ready		   
[Airborne LIDAR] - Estonia 594533 (Predict)				pointcloud	ready		   



Download files by clicking the download icon (1)

Click to register on the Flai web application